

AMENDMENTS TO THE CLAIMS

Claims 1-73. (Canceled)

74. (Currently amended) A copper bond pad for a semiconductor device, said bond pad comprising:

a dielectric layer formed over a substrate of said semiconductor device;

a barrier layer formed over said dielectric layer;

a copper layer formed over said barrier layer, said copper layer having titanium implanted within and near only an upper surface of said copper layer implanted with titanium, said copper layer being primarily copper and having a thickness of about 500 Angstroms to about 20,000 Angstroms; and

an insulating layer over said copper layer,

wherein said implanted titanium acts to reduce formation of copper oxide on said copper layer.

75. (Currently amended) The copper bond pad of claim 74, wherein said titanium implanted within said upper surface of said copper layer implanted with titanium has a thickness of about 50 Angstroms to about 200 Angstroms.

76. (Previously presented) The copper bond pad of claim 74 further comprising a passivation layer formed in contact with said copper layer, wherein said passivation layer is formed of a material selected from the group consisting of silicon oxide, oxynitride, silicon nitride, borophosphosilicate glass and polyimide.

77. (Currently amended) The copper bond pad of claim 76 further comprising a via formed in said insulating layer and said passivation layer, said via exposing a portion of said copper layer and defining said a bond pad area.

78. (Previously presented) The copper bond pad of claim 74, wherein said dielectric layer is formed of a material selected from the group consisting of phosphosilicate glass, borophosphosilicate glass, silicon oxide, silicon nitride, and silicon oxynitride.

79. (Currently amended) An interconnect structure for a semiconductor die, said interconnect structure comprising:

a conductive bond pad containing a copper layer, said copper layer containing a copper oxide layer thereon; and

a titanium-aluminum-copper-nitrogen layer formed as part of said copper layer and from a portion of ~~ever~~ at least an upper surface ~~portion~~ of said copper layer.

80. (Previously presented) The interconnect structure of claim 79, wherein said copper layer is elemental copper.

Claim 81. (Canceled)

82. (Previously presented) The interconnect structure of claim 79, wherein said copper oxide layer has a thickness not greater than 300 Angstroms.

83. (Previously presented) The interconnect structure of claim 79 further comprising an electrical conductor bonded to said titanium-aluminum-copper-nitrogen layer.